

WHAT IS CLAIMED IS:

1. An MCM device comprising a flat thin insulation substrate having parallel top and bottom surfaces; a plurality of laterally displaced conductive vias extending between said top and bottom surfaces; a flip chip semiconductor die having top and bottom surfaces and having at least first and second electrodes on said top and bottom surfaces; said first and second electrodes having contacts on said die bottom surface connected to respective ones of said plurality of vias; a second flip chip semiconductor die having top and bottom surfaces and having at least first and second electrodes on said top and bottom surfaces; said first and second electrodes of said second die connected to respective ones of said plurality of vias; and a moldable conductive electrode extending over the top of said substrate and over the upper most surfaces of said die and in contact therewith, and further connected to a respective one of said vias.

2. An MCM device comprising a flat thin insulation substrate having parallel top and bottom surfaces; a plurality of laterally displaced conductive vias extending between said top and bottom surfaces; a flip chip semiconductor die having top and bottom surfaces and having at least first and second electrodes on said top and bottom surfaces; said first and second electrodes having contacts on said die bottom surface connected to respective ones of said plurality of vias; and an insulation cap covering said die and covering the top surface of said substrate.

3. An MCM device comprising a flat thin insulation substrate having parallel top and bottom surfaces; a plurality of laterally displaced conductive vias extending between said top and bottom surfaces; a flip chip semiconductor die

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10 having top and bottom surfaces and having at least first and second electrodes on said top and bottom surfaces; said first and second electrodes having contacts on said die bottom surface connected to respective ones of said plurality of vias; and a second flip chip semiconductor die having top and bottom surface and having at least first and second electrodes on said top and bottom surfaces; said first and second electrodes of said second die connected to respective ones of said plurality of vias; and an insulation cap covering said die and covering the top surface of said substrate.

5 4. The device of claim 2, which further includes at least one passive component which is beneath said insulation cap has at least one dimension which is longer than another of its dimensions; said passive component being connected to selected ones of said plurality of vias and being mounted on said first surface of said substrate with said at least one dimension disposed perpendicular to said first surface of said substrate.

Sub 472 5 5. The device of claim 3, which further includes at least one passive component which is beneath said insulation cap has at least one dimension which is longer than another of its dimensions; said passive component being connected to selected ones of said plurality of vias and being mounted on said first surface of said substrate with said at least one dimension disposed perpendicular to said first surface of said substrate.

6. The device of claim 2, wherein said insulation top cap has a plurality of spaced fins extending from the free surface thereof.

7. The device of claim 3, wherein said insulation top cap has a plurality of spaced fins extending from the free surface thereof.

8. The device of claim 4, wherein said insulation top cap has a plurality of spaced fins extending from the free surface thereof.

9. The device of claim 5, wherein said insulation top cap has a plurality of spaced fins extending from the free surface thereof.

10. The device of claim 8, wherein in said passive component is disposed laterally between a respective pair of said fins.

11. The device of claim 1, wherein said moldable conductive electrode has an upper surface which contains parallel grooves which define fins in said upper surface of said conductive electrode.

12. The device of claim 2, wherein said insulation cup has a peripheral rim which receives the outer peripheral edge of said substrate.

13. The device of claim 12, wherein the adjacent vertical surfaces of said peripheral rim and said outer peripheral edge of said substrate have cooperating projections and depressions to define a mold lock.

14. The device of claim 1, which further includes respective solder balls connected to the bottoms of said conductive vias.

15. The device of claim 2, which further includes respective solder balls connected to the bottoms of said conductive vias.

16. The device of claim 3, which further includes respective solder balls connected to the bottoms of said conductive vias.

17. ~~The device of claim 4, which further includes respective solder balls connected to the bottoms of said conductive vias.~~

18. The device of claim 6, which further includes respective solder balls connected to the bottoms of said conductive vias.

19. The device of claim 13, which further includes respective solder balls connected to the bottoms of said conductive vias.

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